

## **REMARKS**

The Examiner is thanked for the performance of a thorough search. By this amendment, Claims 1-3, 48, and 84-88 have been amended. No claims have been cancelled or added. Hence, Claims 1-89 are pending in the Application. It is respectfully submitted that the amendments to the claims as indicated herein do not add any new matter to this Application. Furthermore, amendments made to the claims as indicated herein have been made to improve readability and clarity of the claims.

## **SUMMARY OF REJECTIONS/OBJECTIONS**

In the Office Action, Claim 2 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "from the specific agent to the facilitator agent" and is rejected under 35 U.S.C. § 112, second paragraph for lacking sufficient antecedent basis for this limitation in the claim.

Claims 84 and 85 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 87 and 88 recite the limitation "A data wave carrier as recited in claim 85" and are rejected under 35 U.S.C. § 112, second paragraph for lacking sufficient antecedent basis for this limitation in the claim.

Claims 1, 2, 5-11, 15-28, 48-89 are rejected under 35 U.S.C. § 102(b) as being anticipated by "Building Distributed Software Systems With The Open Agent Architecture" by Martin et al.

Claims 1, 2, 5-11, and 15-25 are rejected under 35 U.S.C. 102(b) as being anticipated by "Development Tools for the Open Agent Architecture" by Martin et al.

Claims 3, 29-34, and 38-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Building Distributed Software Systems with the Open Agent Architecture" by Martin.

Claims 4, 12-14 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Building Distributed Software Systems with the Open Agent Architecture" by Martin 1 in view of "Information Brokering in an Agent Architecture" by Martin 2.

Claims 3, 29-34, 38-47, 61-71 and 84-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Developing Tools for the Open Agent Architecture" by Martin et al.

Claims 4, 12-14, 26-28, 35-37, 48-60, 72-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Development Tools for the Open Agent Architecture" by Martin 1 in view of "Information Brokering in an Agent Architecture" by Martin 2.

#### REJECTIONS UNDER 35 U.S.C. § 112

##### CLAIMS 2, 3, 84, 85, 87, and 88

In the Office Action, Claims 2, 3, 84, 85, 87, and 88 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 3, 84, 85, 87, and 88 are amended according to the suggestions of the Examiner. Thus, the amendments to the claims as indicated herein have been made in view of the Office Action's rejection under 35 U.S.C. § 112, second paragraph and to improve clarity of the claims.

#### AFFIDAVITS OF DAVID MARTIN AND ADAM CHEYER UNDER 37 CFR §1.132

Submitted herewith is a declaration under 37 CFR §1.132 by David Martin. In his declaration, David Martin avers that: 1) David Martin, Adam Cheyer and Douglas Moran are the co-authors of the reference, "Building Distributed Software Systems with the Open Agent

Architecture”, 2) David Martin and Adam Cheyer are the only inventors of the subject application, 3) the reference, “Building Distributed Software Systems with the Open Agent Architecture” was published in March 1988, which is less than one year from the filing date of January 5, 1999.

Also, submitted herewith is a declaration under 37 CFR §1.132 by Adam Cheyer. In his declaration, Adam Cheyer avers that: 1) David Martin, Adam Cheyer and Douglas Moran are the co-authors of the reference, “Building Distributed Software Systems with the Open Agent Architecture”, 2) David Martin and Adam Cheyer are the only inventors of the subject application, 3) the reference, “Building Distributed Software Systems with the Open Agent Architecture” was published in March 1988, which is less than one year from the filing date of January 5, 1999.

In accordance with MPEP 716.10, David Martin’s declaration and Adam Cheyer’s declaration render the reference, “Building Distributed Software Systems with the Open Agent Architecture” as inapplicable prior art.

#### REJECTIONS UNDER 35 U.S.C. § 102(b) and § 103(a)

#### CLAIM 1

Claim 1, as amended, recites in part:

“receiving a request for service as a base goal in the inter-agent language, in the form of an **arbitrarily complex goal expression**;  
dynamically interpreting the arbitrarily complex goal expression, said act of interpreting further comprising:  
generating one or more sub-goals expressed in the inter-agent language;  
**constructing a goal satisfaction plan that includes said one or more sub-goals**;  
dispatching each of the sub-goals to a selected client agent for performance, based on a match between the sub-goal being dispatched and **the registered functional capabilities** of the selected client agent.”

The novel method recited in Claim 1 requires **“constructing a goal satisfaction plan that includes said one or more sub-goals.”** None of the cited references disclose, suggest or render obvious the limitation of “constructing a goal satisfaction plan that includes said one or more sub-goals.” For example, Claim 1 requires constructing a goal satisfaction plan that includes said one or more sub-goals whenever the sub-goals cannot be generated by a simple decomposition of the “arbitrarily complex goal expression” in Claim 1. In other words, **“a goal satisfaction plan”** is needed to satisfy the “arbitrarily complex goal expression” in Claim 1 whenever there is no direct match between the components of arbitrarily complex goal expression and the **“registered functional capabilities”** of the client agents.

Since, none of the cited references disclose, suggest or render obvious the limitations of Claim 1 including the limitation of “constructing a goal satisfaction plan that includes said one or more sub-goals”, Claim 1 is allowable over the art of record. It is respectfully submitted that Claim 1 be held in condition for allowance.

#### CLAIMS 2-28

Claims 2-28 are either directly or indirectly dependent upon independent Claim 1, and include all the features of Claim 1. Therefore, Claims 2-28 are allowable for at least the reasons provided herein with respect to Claim 1. Furthermore, it is respectfully submitted that Claims 2-28 recite additional features that independently render Claims 2-28 patentable over the art of record. Thus, it is respectfully submitted that Claims 2-28 be held in condition for allowance.

#### CLAIMS 29, 61, 71 and 86

Claims 29, 61, 71 and 86, each contain the limitation requiring the “construction of a goal satisfaction plan”.

Claim 29, recites in part, the limitations of:

“**constructing a base goal satisfaction plan** including the sub-acts of:  
determining whether the requested service is available,  
determining sub-goals required in completing the base goal,  
selecting service-providing electronic agents from the agent registry suitable for  
performing the determined sub-goals;”

Claim 61, recites in part, the limitations of:

“the facilitating engine further operable to **construct a goal satisfaction plan** specifying  
the coordination of a suitable delegation of sub-goal requests to complete the  
requested service satisfying both the local and global constraints and control  
parameters.”

Claim 71, recites in part, the limitations of:

“the facilitating engine further operable to **construct a goal satisfaction plan** including  
the coordination of a suitable delegation of sub-goal requests to best complete the  
requested service.”

Claim 86, recites in part, the limitations of:

“wherein said at least one facilitator agent is operable to **construct a goal satisfaction  
plan** for satisfying one or more requests for service from said at least one active  
client agent,”

Thus, Claims 29, 61, 71 and 86 contain limitations that are similar to those described herein with respect to Claim 1. Therefore, based on the reasons stated herein, it is respectfully submitted that Claims 29, 61, 71 and 86, are allowable over the art of record for at least the reasons provided herein with respect to Claim 1. Furthermore, it is respectfully submitted that Claims 29, 61, 71 and 86 recite additional features that independently render Claims 29, 61, 71 and 86 patentable over the art of record. Therefore, it is respectfully submitted that Claims 29, 61, 71 and 86 be held in condition for allowance.

CLAIMS 30-47, 62-70, 72-85, 87-89

Claims 30-47, 62-70, 72-85, 87-89 are either directly or indirectly dependent upon independent Claims 29, 61, 71 and 86, respectively. Therefore, Claims 30-47, 62-70, 72-85, 87-89 are allowable for at least the reasons provided herein with respect to Claims 29, 61, 71, 86 and 1. Furthermore, it is respectfully submitted that Claims 30-47, 62-70, 72-85, 87-89 recite additional features that independently render Claims 30-47, 62-70, 72-85, 87-89 patentable over the art of record. Thus, it is respectfully submitted that Claims 30-47, 62-70, 72-85, 87-89 be held in condition for allowance.

#### CLAIM 48

Claim 48, as amended, recites in part:

“the ICL having a syntax supporting compound goal expressions wherein said compound goal expressions are such that **goals within a single request** provided according to the ICL syntax may **be coupled by one or more operators from a set of operators** comprising:  
**a conjunctive operator;**  
**a conditional execution operator;** and  
**a parallel disjunctive operator** that indicates that disjunct goals are to be performed by different agents.”

The novel method recited in Claim 48 requires that “**goals within a single request**” are “**coupled by one or more operators from a set of operators**”. In Claim 48, the set of operators comprise, **a conjunctive operator, a conditional execution operator, and a parallel disjunctive operator.**

None of the cited references disclose, suggest or render obvious the requirement that the “**goals within a single request**” be “**coupled by one or more operators from a set of operators**”, such as **a conjunctive operator, a conditional execution operator, and a parallel disjunctive operator.** Claim 48 is allowable over the art of record. Thus, it is respectfully submitted that Claim 48 be held in condition for allowance.

## CLAIMS 49-60

Claims 49-60 are either directly or indirectly dependent upon independent Claim 48, and include all the features of Claim 48. Therefore, Claims 49-60 are allowable for at least the reasons provided herein with respect to Claim 48. Furthermore, it is respectfully submitted that Claims 49-60 recite additional features that independently render Claims 49-60 patentable over the art of record. Thus, it is respectfully submitted that Claims 49-60 be held in condition for allowance.

## CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is encouraged to call the undersigned at (650) 838-4311.

The Commissioner is authorized to charge any fees due to Applicants' Deposit Account No. 50-2207.

Respectfully submitted,  
Perkins Coie LLP

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VERSION OF CLAIMS WITH MARKINGS TO SHOW CHANGES MADE

1. (Once amended) A computer-implemented method for communication and cooperative task completion among a plurality of distributed electronic agents, comprising the acts of:
  - registering a description of each active client agent's functional capabilities as corresponding registered functional capabilities, using an expandable, platform-independent, inter-agent language;
  - receiving a request for service as a base goal in the inter-agent language, in the form of an arbitrarily complex goal expression;
  - dynamically interpreting the arbitrarily complex goal expression, said act of interpreting further comprising:
    - generating one or more sub-goals [using] expressed in the inter-agent language; [and]
    - constructing a goal satisfaction plan that includes said one or more sub-goals;
    - and
  - dispatching each of the sub-goals to a selected client agent for performance, based on a match between the sub-goal being dispatched and the registered functional capabilities of the selected client agent.
2. (Once amended) A computer-implemented method as recited in claim 1, further including the following acts of:
  - receiving a new request for service as a base goal using the inter-agent language, in the form of another arbitrarily complex goal expression, from at least one of the selected client agents in response to the sub-goal dispatched to said agent;
  - and
  - recursively applying the [last] step of dynamically interpreting the arbitrarily complex goal expression [claim 1] in order to perform the new request for service.



3. (Once amended) A computer-implemented method as recited in claim 2 wherein the act of registering a specific agent further includes:  
invoking the specific agent in order to activate the specific agent;  
instantiating an instance of the specific agent; and  
transmitting the new agent profile from the specific agent to [the] a facilitator agent in response to the instantiation of the specific agent.

48. (Once amended) An Interagent Communication Language (ICL) providing a basis for facilitated cooperative task completion within a distributed computing environment having a facilitator agent and a plurality of autonomous service-providing electronic agents, wherein:

the ICL having one or more features from a set of features comprising:

enabling agents to perform queries of other agents[.] ;

enabling agents to exchange information with other agents[.] ; and

enabling agents to set triggers within other agents[.] ; and

[in] the ICL having a syntax supporting compound goal expressions wherein

said compound goal expressions are such that goals within a single request provided according to the ICL syntax may be coupled by one or more operators from a set of operators comprising:

a conjunctive operator[.] ;

a conditional execution operator[.] ; and

a parallel disjunctive operator [parallel disjunctive operator] that  
indicates that disjunct goals are to be performed by different agents.

84. (Once amended) A computer architecture as recited in claim 71 wherein [the] a planning component of the facilitating engine is distributed across at least two computer processes.

85. (Once amended) A computer architecture as recited in claim 71 wherein [the] an execution component of the facilitating engine is distributed across at least two computer processes.
86. (Once amended) A data wave carrier providing a transport mechanism for information communication in a distributed computing environment having at least one facilitator agent and at least one active client agent, wherein said at least one facilitator agent is operable to construct a goal satisfaction plan for satisfying one or more requests for service from said at least one active client agent, the data wave carrier comprising a signal representation of an inter-agent language description of an active client agent's functional capabilities.
87. (Once amended) A data wave carrier as recited in claim [85] 86, the data wave carrier further comprising a corresponding signal representation of [request] said one or more requests for service in the inter-agent language from a first agent to a second agent.
88. (Once amended) A data wave carrier as recited in claim [85] 86, the data wave carrier further comprising a signal representation of a goal dispatched to an agent for performance from a facilitator agent.